Technical Talk on Shipbuilding – From Design to Finish

By

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The Institution of Engineers, Malaysia (IEM), through the Electronic Engineering Technical Division (eETD), successfully organised a technical talk titled *"Shipbuilding – From Design to Finish"* on Saturday, 21 September 2024. The event was held at RMN Unit, KD Sri Pinang, Jalan Akuarium, and was attended by 31 participants. The primary objective of this session was to provide participants with a comprehensive understanding of the shipbuilding process, from the earliest stages of design through to delivery and acceptance of a completed vessel.

The session was conducted by Cdr. Ir. Wong Sin Futt RMNVR (Rtd.), an experienced naval architect and shipbuilding professional who shared his in-depth knowledge of the shipbuilding industry and its various phases and moderated by Dr. Leow Cheah Wei. He began with an overview of the global shipbuilding industry and the different categories of ships, including merchant and naval vessels, highlighting their respective design considerations.

Cdr. Wong then discussed the process of shipyard selection and design, emphasising the importance of due diligence when evaluating a builder's track record and quality management systems. He explained the design process in detail, including the use of computational fluid dynamics (CFD) for hull form development, model testing, preparation of general arrangement drawings, outline specifications, power analysis, and preliminary trim and stability calculations.

Speaker sharing the background of the talk

The talk also addressed compliance with international regulations and classification society rules, such as those of the International Maritime Organisation (IMO) and major classification bodies including Lloyd's Register, ABS, BV, CCS, ClassNK, DNV, and RINA. Cdr. Wong provided insights into contract negotiation, issuance of Letters of Intent, contract signing, and the legal implications of shipbuilding contracts. He then elaborated on hull design and construction techniques, welding and fabrication processes, and the selection of propulsion systems and auxiliary machinery, including developments in diesel, gas turbine, and electric propulsion technologies.

Further, he explained the integration of systems and outfitting, covering electrical and piping systems, navigation and communication systems, accommodation, and safety equipment. Participants were also guided through the shipyard production process, including steel fabrication, block construction and assembly, keel laying, launching, and outfitting. Cdr. Wong stressed the importance of quality assurance and control, describing inspection and testing procedures that are vital at each stage of ship construction. He concluded by explaining commissioning tests, sea trials, post-trial inspections, crew familiarisation, final delivery, and warranty considerations.

Dr. Leow presenting the speaker's certificate to Cdr. Ir. Wong Sin Futt

The session ended with an interactive Q&A session, where participants had the opportunity to discuss real-world applications, project management challenges, and compliance with statutory regulations. The talk was well received by the participants, who appreciated the clarity and depth of information presented.

Group photo of the speaker and some of the participants

In conclusion, the session successfully provided participants with a detailed and structured understanding of the shipbuilding process, highlighting the complexity of integrating engineering design, regulatory compliance, project management, and quality assurance. This event offered an excellent opportunity for engineers to broaden their knowledge of shipbuilding and its importance in the maritime and defence sectors.